Appendix D AFRTS Satellite Information

Current as of 29 Jan 08

AFRTS SatNet Service

NewSkies NSS-9 (C-band) (dual transponders)

Location: 183 degrees East
Band: C
Transponder Antenna polarization: Left-hand circular
Receiver Setting Polarization: "H-fixed" for model 9234 consumer-grade decoders or "H" for commercial-grade decoders with dual-band LNBs
C Band Downlink Frequency: 3647.1250 MHz and 3683.0 MHz
L-Band: 1502.875 MHz and 1467.0 MHz
Symbol Rate: 28.0000 MS/s
FEC Rate: ¾
EIRP: 35.5 dBW
Network ID: 2 and 8
Coverage Map: http://www.newskies.com/newhome/home_net.asp# click on the map and select NSS-5 and then the C-band half of the satellite. The north-west zone beam is AFRTS.

NewSkies NSS-6 (Ku-band) (dual transponders)

Location: 95 degrees East
Band: Ku
Transponder Antenna polarization: Vertical Polarization**
Receiver Setting Polarization: "V-fixed" for model 9234 consumer-grade decoders or "V" for commercial-grade decoders with dual-band LNBs
Ku Band Downlink Frequency: 12.647 GHz and 12.688 GHz
Transponder: B5 and C3
L-Band: 2.047 GHz* and 2.088 GHz*
Symbol Rate: 28.0000 MS/s
FEC Rate: ¾
EIRP: 53.7 dBW center pattern
Network ID: 4
Coverage Map: http://www.newskies.com/newhome/home_net.asp# click on the map and select NSS-6 and then the Ku-band half of the satellite (lower half. Now hover the mouse over the Japan/Korea area.

INTELSAT 10-02 (South America, Africa, and Atlantic Ocean Region)

Location: 359 degrees East (1 degree West)
Band: C
Transponder Antenna Polarization: RHCP
Receiver Setting Polarization: "H-fixed"
C-Band Frequency: 4.1750 GHz
Transponder: 38
L-Band frequency: 975 MHz

Symbol rate: 28.0000 MS/s
FEC rate: ¾
EIRP: 35 dBW
Network ID 3
Coverage Map: http://www.intelsat.com/images/en/resources/coveragemaps/maps/10-02-359-global.jpg

IntelSat Galaxy 28 (United States/Central America/Caribbean)

Location: 89 degrees West
Band: C/L Band
C-band frequency: 4.060 GHz
Transponder: 18
Transponder Antenna Polarization: Horizontal Polarization
Receiver Setting Polarization: "H-fixed" for model 9234 consumer-grade decoders or "H" for commercial-grade decoders with dual-band LNBs
L-Band frequency: 1090 MHz
Symbol rate: 28.0000 MS/s
FEC rate: ¾
EIRP: 42 dBW
Network ID 9
Coverage Map: http://www.intelsat.com/apps/coverage-maps/images/en/resources/coveragemaps/maps/IA-8-C-band-NA.jpg

HOTBIRDS 6 & 9 (Europe)

Location: 9 and 13 degrees East (co-located together)
Band: Ku
Transponder Antenna Polarization: Vertical Polarization
Transponder: 113 (6), 129 (7A)
Receiver Setting Polarization: "H-fixed" for model 9234 consumer-grade decoders or "H" for commercial-grade decoders with dual-band LNBs based on transponder settings
Ku Band Downlink Frequency: 10.775 GHz (6), 11.096 (7A)
L-Band/LO frequency: 1025 MHz* (assuming 9.750 MHz LNB Frequency)
Symbol rate: 28.0000 MS/s
FEC rate: ¾
EIRP: 50.0 dBW
Network ID 6
Coverage map: http://www.eutelsat.org/satellites/9e_eb9_popd.html

Direct To Sailor (DTS) Service

INTELSAT 701 (Pacific Ocean)

Location: 180 degrees East
Band: C
Transponder number: 88
Transponder Antenna Polarization: LHCP
Receiver Setting Polarization: "H-fixed"
C-Band frequency: 4.1735 GHz
L-Band frequency: 976.5 MHz
Symbol Rate: 3.6800 MS/s
FEC rate: 2/3
EIRP: 29.0 dBW
Network ID 5
Coverage map: http://www.intelsat.com/images/en/resources/coveragemaps/maps/701-180-global.jpg (global)

INTELSAT 906 (Indian Ocean and Persian Gulf)

Location: 64.1 degrees East
Band: C
Transponder number: 86
Transponder Antenna Polarization: LHCP
Receiver Setting Polarization: "H-fixed"
C-Band frequency: 4093.5 MHz
L-Band frequency: 1056.5 MHz
Symbol Rate: 3.6800 MS/s
FEC Rate: 2/3
EIRP: 29.0 dBW
Network ID 7
Coverage map: http://www.intelsat.com/images/en/resources/coveragemaps/maps/906-64-global.jpg (global)

New Skies NSS-7 (Atlantic Ocean and Mediterranean Sea)

Location: 338.0 degrees East (22 degrees West)
Band: C
Transponder number: 87
Transponder Antenna Polarization: LHCP
Receiver Setting Polarization: "H-fixed"
C-Band frequency: 4115 MHz
L-Band frequency: 1035 MHz
Symbol Rate: 3.6800 MS/s
FEC Rate: 2/3
EIRP: 30.5 dBW
Network ID 6
Coverage map: http://www.newskies.com/PBFleet/fleet7new.asp (global)

IntelSat 707 C Band Domestic to Clarksburg

Location: 53 degrees West
Band: C
Transponder number: 41
Transponder Polarity: Left-hand Circular
Receiver Setting Polarization: "H-fixed"
C-Band frequency: 3.77249 GHz
L-Band frequency: 1.27751 GHz
Network ID 2
EIRP: 17.3 dbw

AMC-1 Ku Band (The Pentagon Channel)

Location: 103 degrees West
Band: Ku
Transponder number: 20
Transponder Polarity: Vertical Polarization
Receiver Setting Polarization: Vertical
Ku band frequency: 12.100 GHz*
Transponder number: 20
Symbol Rate: 20,000 MS/s
FEC Rate: ¾
Network ID:1
Encryption: none
Coverage map: http://www.ses-americom.com/satellites/amc-1.html

* **Important note on LNB frequencies**: all C-band LNB's have a local oscillator (L.O.) frequency of 5.150 GHz but Ku-band LNB's may come in many different frequencies typically 9.750 to 12.75 GHz. This figure is typically printed on a label on the side of the LNB. This means that if you're attempting to watch a Ku-band service you need to set the decoder's frequency using a bit of simple math. The formula to set the Ku-Low/Single L.O. frequency on the AFRTS decoder is the downlink frequency minus the L.O. frequency. As an example the downlink frequency for the NSS-6 satellite serving the Japan and Korea Direct to Home service area is 12.647 GHz. An LNB with a local oscillator frequency of 10.000 GHz would give a Ku Low/Single L.O. frequency of 2647 MHz (2.647 GHz) by working the math problem 12.6470 – 10.000 = 2.647. The Ku-band satellites serving the European service area are Hotbirds 6 & 7 at 13 degrees east and it has a downlink frequency of 10.775 GHz. Connecting an LNB with a local oscillator frequency of 9.750 would result in a receiver frequency of 1025 MHz (10.775 – 9.750 = 1.025 GHz which is 1025 MHz).

****Important note on NSS-6 polarization**: Low Noise Block down converters (LNB's) can come with one of two different configurations – either circular or linear. LNB's typically have their polarization marked on their label. Prior to January of 2005 the satellite that provided the Direct-to-Home service for the Japan and Korea audiences was circularly polarized and satellite dish systems sold to those customers were also circularly polarized. In January of 2005 the satellite feeding these signals failed and service was shifted to NewSkies NSS-6 Ku band service which uses a linear antenna to vertically polarize the signal. Customers with circular LNB feedhorn assemblies can still receive the linear signals they just lose 3dB of the signal. This loss shouldn't be an issue with the high power Ku signal NSS-6 provides. However in the future linear LNB's may be purchased and installed in the Japan and Korea area which will add an additional step in tuning the antenna. Linear LNB's require a polarization peaking where the LNB is rotated clockwise and counterclockwise within their mounting on the dish to peak the signal. As the feed assembly is rotated through ninety degrees the signal will change from maximum down to minimum. Once the point of maximum signal is found the point is marked with a magic marker and the screws holding the LNB feed assembly in place are tightened down.